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having been polished by hand on paper), so that it would split 36 *Andromedæ* with 210, clearly and sharply. He, however, expects superior results from a machine-made speculum, and speaks in the highest terms of my suggestion of the graduated pitch-tool.

Mr. With, of Hereford, in his small intervals of leisure during the last three months, has completed three or four glass specula of the highest class, 6¼-inches aperture and 6-feet focus, and 5½-inches aperture and 4½-feet focus. With the larger telescope he is able to elongate the disk of the small companion of γ *Andromedæ* readily. Its definition of a large fixed star is remarkably fine, giving a perfectly round clean disk, surrounded at a little distance by one faint concentric ring, and without any other appendage or false light whatever.* This was his first attempt. One of his 5½-inches specula is, however, slightly superior to this, and is presumed to be perfect: not the least trace of error of figure can be detected over the entire surface after the strictest scrutiny.

The belief is, after sundry trials and comparisons with achromatics, that the silvered-specula Newtonian is very little, if at all, inferior in efficiency to the finest achromatic of the same aperture. Should this be confirmed by future experience, as I fully anticipate it will be, the former will prove to be formidable rivals to the latter, as the cost of making is not likely to amount to one-eighth or even one-tenth of the achromatic object-glass.

I have omitted to mention that excellent small glass flats for silvering may be obtained from the common French plate-glass—the best from the middle of the plate.

Should any member of the Society desire further information beyond what I have been able to convey in these brief notes, I shall be happy to give it at any time.

*Stretton Rectory, Hereford,*
*March 9th,* 1863.

## *Companion of Sirius.*

(*Extract of a Letter from the Rev. W. Dawes.*)

"Goldschmidt's star *d* near *Sirius* is easy enough, but I have not been able to perceive any of the others. In fact, such an object is far less a *telescopic*, than an *atmospheric test* in these latitudes. The star should be examined at the Cape of Good Hope."

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* The fifth star in the trapezium in *Orion* is visible as a steady object, and the sixth in moments of fine vision. The distant comes of λ *Orionis*, not mentioned by Smyth, is an easier object in this telescope than the fifth star in the trapezium. In the triple star ζ *Orionis* the separation between the close pair is equal to one diameter of the large star with a power of 220.

*Hopefield, Haddenham,* 10*th April*, 1863.

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Mr. Carrington, in reference to the subject of the Motion of the Solar System in Space, remarks as follows:—

"I have just become acquainted with the circumstance, that in 1859 a Royal Medal was offered for competition in the University of Christiania for the best Memoir to be received in 1860, containing an investigation whether the mean direction of motion of the Comets before coming under solar influence differed from the concluded motion of the Sun, and that the award was made to Candidate Mohn for a Memoir just published under the professorial superintendence of Prof. Fearnley. Very curiously, as it appears to me, the attack is conducted by the only way which I can conceive different to the process I followed myself in 1860, in a short Memoir which the Society did me the honour to publish. Mr. Mohn, after selecting 173 orbits, and throwing out the periodical ones, searches to find whether there is any region of the heavens approaching a great circle belt, in which the poles of the several planes of motion are chiefly congregated, and finding such a belt of preponderance and fairly regular distribution, points out that the axis of this belt will be the general direction of cometic motion as defined. His conclusion is, that the direct and retrograde Comets concur in giving a mean direction of motion towards long. 0° lat. + 10½°, or nearly at right angles to the general conclusion for solar motion.

"But Prof. Fearnley, who appears, as proposer of the Problem in Christiania, to take much personal interest in it, points out in his commentary that the direction found in the Memoir is greatly attributable to the special circumstances attending the discovery of Comets, which, it will be remembered, I had also occasion to dwell upon in considering the conclusions of my own investigation. These are

"1 The discovery generally between sunset and midnight.

"2 Observers mainly in northern hemisphere.

"3 The heliocentric elongation of the Comet being commonly acute.

"He goes so far as to say, that examining the effects of these circumstances, he obtains, as a direct and necessary consequence therefrom, the result arrived at by Mr. Mohn.

"The attack on this problem by way of the orbits appears, therefore, by two independent inquiries, to be hopelessly

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nugatory; and it becomes the more desirable that the older route of research should be promoted by the improving the data needful for its success, namely, well determined stellar residual motions; the whole subject at present seeming, on critical examination, to be less advanced than once supposed, though presenting hopes of successful future research."

## *Minor Planet* (77).

The discovery of this minor planet by Dr. Peters, and his observations of it Nov. 1862, are mentioned *Monthly Notices, ante*, p. 76, and in the *Ast. Nach.* No. 1399. No further observations appear to have been made, nor any elements computed.

## *Minor Planet* (78), *Diana*.

The discovery, by Dr. Luther, Director of the Observatory of Bilk, is announced *Ast. Nach.* No. 1408; the planet was seen of the magnitude 10, the position being

$$\begin{array}{ll} \text{1863, March 15, } 13^{h}\,24^{m}\,14^{s}{\cdot}4 \text{ Bilk M.T.} & \text{R.A. } 180^{\circ}\,12'\,6''{\cdot}8. \\ & \text{Decl. } -\,7^{\circ}\,20'\,3''{\cdot}4. \end{array}$$

the retrograde motion being more than 2 seconds of time in the hour.

The following elements, calculated from the Bilk Observation of 15 March, and from observations at Bonn, March 23 and 31, have been calculated by Herr Tiele of Bonn, *Ast. Nach.* No. 1410.

Epoch, 1863, March 15·0, Berlin M.T.

$$\begin{array}{rcl} & & \;\;\,{}^{\circ}\quad\;\; ' \quad\;\; '' \\ M & = & 39\;\;50\;\;29{\cdot}0 \\ \left.\begin{array}{r} \pi \\ \Omega \\ i \end{array}\right. & \begin{array}{c} = \\ = \\ = \end{array} & \left.\begin{array}{r} 121\;\;\;6\;\;30{\cdot}3 \\ 334\;\;\;1\;\;19{\cdot}3 \\ 8\;\;39\;\;\;4{\cdot}8 \end{array}\right\}\text{Equinox, 1863·0.} \\ \varphi & = & 11\;\;59\;\;38{\cdot}8 \\ \mu & = & 833''{\cdot}877 \\ \text{Log } a & = & 0{\cdot}419270 \end{array}$$